

AN ANNOTATED LIST OF MOSQUITO RECORDS FROM COLORADO

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The original purpose of this report was to assemble data on the mosquitoes of Colorado that have been obtained by personnel of the U. S. Public Health Service, Malaria Control in War Areas and Communicable Disease Center Programs, during the seasons of 1944-1947. However, the original plan was modified and broadened to include all mosquito records from Colorado that have come to the attention of the writer. This action was taken because no recent attempt has been made to bring all published Colorado mosquito records together into a single report and, further, because of the fact that the earlier published records from Colorado are widely scattered in entomological literature.

For convenience the species and the collection data are arranged alphabetically. Names of the principal collectors have been abbreviated as follows: T. D. A. Cockerell, (C); H. G. Dyar, (D); F. C. Harmston, (H); G. F. Knowlton, (K); W. R. Lasky, (L) and L. E. Perry, (P).

LIST OF SPECIES RECORDED

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| 1. <i>Aedes campestris</i> Dyar & Knab. | 21. <i>Aedes riparius</i> Dyar & Knab. |
| 2. <i>Aedes canadensis</i> (Theobald). | 22. <i>Aedes sticticus</i> (Meigen). |
| 3. <i>Aedes cataphylla</i> Dyar. | 23. <i>Aedes stimulans</i> (Walker). |
| 4. <i>Aedes cineris</i> Meigen. | 24. <i>Aedes triseriatus</i> (Say). |
| 5. <i>Aedes communis</i> (De Geer). | 25. <i>Aedes trivittatus</i> (Coquillett). |
| 6. <i>Aedes dorsalis</i> (Meigen). | 26. <i>Aedes vexans</i> (Meigen). |
| 7. <i>Aedes excrucians</i> (Walker). | 27. <i>Anopheles franciscanus</i> McCracken. |
| 8. <i>Aedes fitchii</i> (Felt & Young). | 28. <i>Anopheles freeborni</i> Aitken. |
| 9. <i>Aedes flavescens</i> (Muller). | 29. <i>Anopheles occidentalis</i> Dyar & Knab. |
| 10. <i>Aedes idahoensis</i> (Theobald). | 30. <i>Anopheles punctipennis</i> (Say). |
| 11. <i>Aedes impiger</i> (Walker). | 31. <i>Anopheles quadrimaculatus</i> Say. |
| 12. <i>Aedes increpitus</i> Dyar. | 32. <i>Culex apicalis</i> Adams. |
| 13. <i>Aedes intrudens</i> Dyar. | 33. <i>Culex pipiens</i> Linnaeus. |
| 14. <i>Aedes klotsi</i> Matheson. | 34. <i>Culex restuans</i> Theobald. |
| 15. <i>Aedes lateralis</i> (Meigen). | 35. <i>Culex salinarius</i> Coquillett. |
| 16. <i>Aedes nearcticus</i> Dyar. | 36. <i>Culex tarsalis</i> Coquillett. |
| 17. <i>Aedes nigromaculis</i> (Ludlow). | 37. <i>Culiseta alaskaensis</i> (Ludlow). |
| 18. <i>Aedes pionips</i> Dyar. | 38. <i>Culiseta impictiens</i> (Walker). |
| 19. <i>Aedes pullatus</i> (Coquillett). | 39. <i>Culiseta incidens</i> (Thomson). |
| 20. <i>Aedes punctor</i> (Kirby). | 40. <i>Culiseta inornata</i> (Williston). |

41. *Culiseta melanura* (Coquillett). 44. *Psorophora confinnis* (Lynch Arribal-
42. *Culiseta morsitans* (Theobald). zaga).
43. *Mansonia perturbans* (Walker). 45. *Psorophora signipennis* (Coquillett).

Aedes campestris Dyar & Knab

This species was collected in the northwestern section of the state, in the vicinity of alkaline borrow pits. The females were observed to bite readily during the evening, after being disturbed from their resting places in the grass.

Garfield County: Rifle, July 18, 1947 (H). Rio Blanco County: Rangeley, July 17, 1947 (H).

Aedes canadensis (Theobald)

Canadensis was taken on two occasions in forested areas above 8000 feet elevation. Larvae were collected from marshy ground pools near the edge of the forests. The females attack during the daytime in shaded, woodland areas.

Clear Creek County: Georgetown, July 19, 1947 (H). Summit County: Frisco, July 19, 1947 (H).

Aedes cataphylla Dvar

This is one of the more troublesome mosquitoes in the mountains of Colorado. The females attack readily in the wooded areas and inflict a painful bite. Along the lower limits of its range it is associated with *canadensis*; at the higher elevations, around 10,000 feet, it occurs with *communis* and *punctor*.

Grand County: Grand Lake, May, 1923 (D), (3); Fraser, May 31, 1923 (D) (3). Larimer County: Estes Park, August 20, 1940 (K). Routt County: Rabbit Ears Pass, May 14, 1947 (H). Summit County: Frisco, July 19, 1947 (H); Loveland Pass, July 19, 1947 (H).

Aedes cinereus Meigen

This species was collected along the foothills of the higher mountain ranges, in the vicinity of wooded streams. It is a persistent biter in the wooded areas during daytime.

Eagle County: Minturn, July 19, 1947 (H). Garfield County: Glenwood Springs, July 19, 1947 (H). Grand County: Grand Lake, July 3, 1923 (D), (3). Moffat County: Craig, June 13, 1947 (H).

Aedes communis (DeGeer)

This species was encountered in the higher mountain areas of the state. The females were observed to bite readily in wooded areas dur-

ing the daytime and in open areas at evening. It occurs in tremendous numbers in many of the higher mountain regions where breeding conditions are favorable and is to be regarded as the most troublesome species within its range.

Clear Creek County: Georgetown, July 17, 1947 (H). Chaffee County: Salida, May 24, 1947 (H). Grand County: Grand Lake, June 3, 1923 (D), (3). Gunnison County: Monarch Pass, May 25, 1947 (H). Summit County: Loveland Pass, July 19, 1947 (H).

***Aedes dorsalis* (Meigen)**

Dorsalis was found in all regions of the state except for the higher mountain areas. It is a troublesome species in many of the high valleys but apparently is absent in the wooded localities. *Dorsalis* is the dominant mosquito on the Colorado plains and the most troublesome pest species in the state.

Adams County: Fitzsimons General Hospital, 1944-1945 (L). Alamosa County: Alamosa, August 9, 1944 (P). Arapahoe County: Ft. Logan, July 10, 1944 (P). Bent County: Las Animas, September 6, 1944 (P); May 23, 1947 (H). Delta County: Delta, September 4, 1944 (P). El Paso County: Colorado Springs, 1942 (Portman). Garfield County: Silt, August 11, 1944 (P). Jackson County: Walden, August 24, 1940 (K). Larimer County: Estes Park, August 24, 1940 (K); Ft. Collins, 1941 (James). Mesa County: Grand Junction, August 11, 1944 (P). Moffat County: Craig, July 14, 1944 (P); June 13, 1947 (H). Rio Grande County: Monte Vista, August 9, 1944 (P). Routt County: Hayden, July 14, 1944 (P). Weld County: Greeley, August 8, 1944 (P).

***Aedes excrucians* (Walker)**

Grand County: Columbine Lake, June 2, 1923 (D), (3); Grand Lake, June 21, 1923 (D). Larimer County: Ft. Collins, 1941 (James). This species is recorded by Cockerell, as *Aedes sansoni* from Buena Vista and Salida, in Chaffee County and from Estes Park, in Larimer County.

***Aedes fitchii* (Felt and Young)**

This species was observed to be locally abundant in the foothill regions of both sides of the Continental Divide, and in wooded areas of the higher mountain valleys. Larvae and adults of this species were frequently associated in the same habitat with those of *A. cinereus* and *A. increpitus*. The females bite readily, particularly in the evening.

Adams County: Fitzsimons General Hospital, July, 1945 (L). Eagle County: Red Cliff (C). Grand County: Grand Lake, July 16, 1923 (D), (3) as *A. mimesis*. El Paso County: Palmer Lake, June 21, 1947 (H). Larimer County: Loveland, July 25, 1947 (H); Pingree Park, August 21, 1940 (K). Moffat County: Craig, June 13, 1947 (H); Fortification, June 12, 1947 (H). Weld County: La Salle, April 19, 1947 (H).

***Aedes flavescens* (Muller)**

One newly-emerged male of this species was taken as it rested upon the surface of a small pool, in the grassy, plains region of northern Larimer County. This pool contained an abundance of *dorsalis* and *nigromaculis* larvae, but attempts to locate larvae of *flavescens* proved unsuccessful.

Larimer County: Virginia Dale, July 25, 1947 (H).

***Aedes idahoensis* (Theobald)**

This mosquito is a very troublesome pest species in the plains areas and lower mountain valleys over the northern half of the state, particularly on the west side of the Continental Divide. The females attack readily during daytime or evening and inflict a painful bite. It is frequently associated with *dorsalis* and *nigromaculis*.

Chaffee County: Salida (C). Garfield County: Carbondale and Glenwood Springs (C); Rifle, July 19, 1947 (H). Grand County: Fraser, June 26, 1923 (D); Granby, June 26, 1923 (D); July 14, 1944 (P). Larimer County: Virginia Dale, July 25, 1947 (H). Moffat County: Craig, June 13, 1947 (H); Maybell, June 14, 1947 (H). Pitkin County: Aspen (C). Routt County: Hayden, July 14, 1944 (P). Weld County: Greeley, August 8, 1944 (P).

***Aedes impiger* (Walker)**

Grand County: Grand Lake, May-June, 1923 (D), (3).

***Aedes increpitus* Dyar**

Increpitus is a common, troublesome species in wooded areas along the foothills and in the higher valleys of the state. Larvae were collected on numerous occasions from overflow pools along wooded streams. The adult females were frequently found in association with *cinereus*, *fitchii* and *versans*.

Adams County: Fitzsimons General Hospital, May-July, 1945 (L). Eagle County: Minturn, July 19, 1947 (H). Garfield County:

Rifle, July 19, 1947 (H). Jefferson County: Golden, July 20, 1947 (H). Larimer County: Ft. Collins, 1941 (James); Pingree Park, August 21, 1940 (K). Mesa County: Grand Junction, July 10, 1946 (H). Moffat County: Craig, June 13, 1947 (H). Montezuma County: Cortez, July 7, 1946 (H). Routt County: Steamboat Springs, July 19, 1946 (H).

***Aedes intrudens* Dyar**

Grand County: Grand Lake, May-June, 1923 (D), (3).

***Aedes klotsi* Matheson**

Costilla County: Mt. Home Lake, above Ft. Garland, July 20, 1923 (Klots), (6).

***Aedes lateralis* (Meigen)**

Boulder County: Reported from Boulder, as *Aedes aldrichii*, by Cockerell (1).

***Aedes nearcticus* Dyar**

Alamosa County: Reported from Alamosa, by Matheson (7).

***Aedes nigromaculis* (Ludlow)**

This species is widely distributed and abundant in most irrigated farming regions of the state and in the plains country. It was not encountered in the foothill or mountainous areas. Because of its abundance, and the avidity of the females, *nigromaculis* probably ranks next to *dorsalis* in importance as a pest mosquito in Colorado.

Adams County: Fitzsimons General Hospital, June -September, 1944-45 (L). Alamosa County: Alamosa, August 9, 1944 (P); July 9, 1946 (H). Bent County: Las Animas, May 23, 1947 (H). Chaffee County: Salida, May 24, 1947 (H). Eagle County: Glenwood Springs, July 19, 1947 (H). Larimer County: Ft. Collins, 1941 (James); Virginia Dale, July 25, 1947 (H). Las Animas County: Trinidad, August 9, 1944 (P). Mesa County: Grand Junction, August 11, 1944 (P); July 10, 1946 (H). Moffat County: Craig, June 30, 1947 (H); Maybell, June 13, 1947 (H). Montezuma County: Cortez, July 7, 1946 (H). Otero County: La Junta, May 22, 1947 (H). Pueblo County: Pueblo, May 24, 1947 (H). Washington County: Akron (C). Weld County: Greeley, April 19, 1947 (H).

***Aedes pionips* Dyar**

Grand County: Grand Lake, June, 1923 (D), (3).

***Aedes pullatus* (Coquillett)**

This species was observed to be locally abundant in a number of mountainous areas of the state. The females were observed only in heavily wooded localities; they bite readily, particularly in the evening, inflicting a painful bite. Larvae were taken in grassy pools in the vicinity of timber.

Chaffee County: Salida, May 24, 1947 (H). Eagle County: Glenwood Canyon, July 19, 1947 (H); Minturn, July 19, 1947 (H). Grand County: Grand Lake and Poudre Lake, June, 1923 (D), (3). Gunnison County: Gunnison, May 25, 1947 (H); Monarch Pass, May 25, 1947 (H). Larimer County: Estes Park, July, 1923 (D), (3); Pingree Park, August 21, 1940 (K). Las Animas County: Trinidad, August 9, 1944 (P). Routt County: Steamboat Springs, July 19, 1946 (H). Cockerell reports this species, as *A. acrophilus*, from Chaffee, Eagle and Pitkin Counties.

***Aedes punctor* (Kirby)**

Grand County: Grand Lake, June 19, 1923 (D); Poudre Lake, July 4, 1923 (D), (3). Summit County: Loveland Pass, July 20, 1947 (H).

***Aedes riparius* Dyar and Knab**

Grand County: Columbine Lake, June 22, 1923 (D), (3).

***Aedes sticticus* (Meigen)**

Adams County: Fitzsimons General Hospital, August, 1945 (L). Chaffee County: Salida, May 25, 1947 (H). Gunnison County: Gunnison, May 25, 1947 (H). Moffat County: Craig, June 13, 1947 (H); Elk Springs, June 14, 1947 (H).

***Aedes stimulans* (Walker)**

Eagle County: Minturn (C), (1). Las Animas County: Trinidad, August 9, 1944 (P). Teller County: Florissant (C), (1). *Stimulans* is reported from Colorado by Olson and Keegan (8), but no specific locality is given.

***Aedes triseriatus* (Say)**

Adams County: Fitzsimons General Hospital, July-September, 1945 (L). Arapahoe County: Ft. Logan, July 10, 1944 (P). El Paso County: Colorado Springs, 1942 (Portman). Larimer County: Loveland, July 25, 1947 (H).

***Aedes trivittatus* (Coquillett)**

Adams County: Fitzsimons General Hospital, June-August, 1944-45 (L). Arapahoe County: Ft. Logan, 1941 (Portman). Boulder County: Longmont, July 25, 1947 (H). Larimer County: Ft. Collins, 1941 (James), (4). Pueblo County: Pueblo, September 5, 1944 (P). Routt County: Hayden, July 14, 1944 (P). Dyar (3), comments on this species as follows: Denver, August (Tucker), originally recorded as *Culex pipiens*, and again as *Culiseta inornatus*."

***Aedes vexans* (Meigen)**

In Colorado this species breeds abundantly in overflow pools along wooded streams, in flooded borrow pits and in waste irrigation water. It is widely distributed over the foothills and in the plains and irrigated farming regions but was not encountered in mountainous areas above 8000 feet elevation. It probably ranks third, behind *dorsalis* and *nigromaculis*, in importance as a pest species in the state.

Adams County: Fitzsimons General Hospital, May-August, 1944-45 (L). Arapahoe County: Ft. Logan, September 8, 1944 (P). Bent County: Las Animas, September 6, 1944 (P). Boulder County: Boulder, August 24, 1940 (K); Longmont, July 25, 1947 (H). Costilla County: Ft. Grland, August 8, 1944 (P). Denver County: Denver, September 6, 1917 (C); September 6, 1944 (P). Eagle County: Eagle, August 10, 1944 (P). Fremont County: Canon City, May 23, 1947 (H). Garfield County: Rifle, July 19, 1947 (H). Gunnison County: Gunnison, September 4, 1944 (P). Jefferson County: Golden, July 20, 1947 (H). Larimer County: Ft. Collins, 1941 (James); Virginia Dale, July 25, 1947 (H). Moffat County: Craig, July 13, 1947 (H). Otero County: La Junta, May 22, 1947 (H). Pueblo County: Pueblo, September 5, 1944 (P). Rio Blanco County: Rangely, July 17, 1947 (H). Routt County: Steamboat Springs, July 19, 1946 (H). Weld County: Greeley, August 8, 1944 (P).

***Anopheles franciscanus* McCracken**

Widely scattered over the southern half of the state.

Bent County: Las Animas, September 6, 1944 (P). Cheyenne County: Wild Horse, September 6, 1944 (P). Delta County: Delta, September 4, 1944 (P). Eagle County: Glenwood Springs, July 19, 1947 (H). La Plata County: Ignacio, September 12, 1946 (H). Lincoln County: Limon, September 6, 1944 (P). Logan County: Sterling, September 8, 1944 (P). Mesa County: Grand Junction, August

11, 1944 (P); July 10, 1946 (H). Prowers County: Lamar, September 6, 1944 (P). Pueblo County: Pueblo, September 5, 1944 (P).

Anopheles freeborni Aitken

Freeborni, the western malarial mosquito, is widely distributed in the state, west of the Continental Divide. It is recorded from a few localities east of the Divide, in the southcentral part of the state.

Chaffee County: Salida, September 5, 1944 (P). Delta County: Delta, September 4, 1944 (P). Dolores County: Dove Creek, July 7, 1946 (H). Eagle County: Eagle, July 19, 1947 (H); Glenwood Springs, August 10, 1944 (P). Fremont County: Canon City, September 5, 1944 (P). Garfield County: Rifle, July 18, 1947 (H); Silt, August 11, 1944 (P). Mesa County: Grand Junction, August 11, 1944 (P); July 10, 1946 (H). Montezuma County: Cortez, July 7, 1946 (H). Pueblo County: Pueblo, September 5, 1944 (P). Rio Blanco County: Meeker, July 17, 1947 (H). Olson and Keegan (8) record the occurrence of *freeborni* in Colorado, but do not list the specific locality.

Anopheles occidentalis Dyar and Knab

Arapahoe County: Ft. Logan, July 6, 1944 (P); August 1, 1944 (Olson and Keegan), (9). Clear Creek County: Georgetown, July 19, 1947 (H). Jefferson County: Golden, July 20, 1947 (H). Larimer County: Loveland, July 25, 1947 (H).

Anopheles punctipennis (Say)

Larimer County: Virginia Dale, July 25, 1947 (H). Logan County: Sterling, September 8, 1944 (P). Pueblo County: Pueblo, June 23, 1944 (Olson and Keegan), (9).

Anopheles quadrimaculatus Say

This species has been recorded by Cockerell (1), from Delta and Hotchkiss in the west-central part of the state. Dyar (3), refers to these records but states that the occurrence of *quadrimaculatus* in western Colorado remains uncertain until verified by a male.

Study of several hundred *Anopheles* adults and larvae taken in western Colorado during the seasons of 1944-46 has shown all to be either *occidentalis*, *franciscanus* or *freeborni*. The latter species is widely distributed over the western half of the state and is particularly numerous near Delta and Hotchkiss; the records of Cockerell probably refer to this species.

***Culex apicalis* Adams**

Adams County: Fitzsimons General Hospital, May 17, 1945 (L).
Arapahoe County: Ft. Logan, August 12, 1944 (Olson and Keegan).
Boulder County: Longmont, July 25, 1947 (H). Jefferson County:
Golden, July 20, 1947 (H).

***Culex pipiens* Linnaeus**

Adams County: Aurora, June 9, 1944 (P); Fitzsimons General
Hospital, August-October, 1944-45 (L). Boulder County: Longmont,
July 25, 1947 (H). Garfield County: Rifle, July 19, 1947 (H). La
Plata County: Durango, September 13, 1946 (H). Moffat County:
Craig, June 13, 1947 (H).

***Culex restuans* Theobald**

Adams County: Fitzsimons General Hospital, August-September,
1944 (L). Denver County: Denver, July 23, 1947 (H). El Paso
County: Colorado Springs, 1942 (Portman); reported as *territans*
Walker. Garfield County: Glenwood Springs, July 19, 1947 (H);
Rifle, July 18, 1947 (H).

***Culex salinarius* Coquillett**

Adams County: Fitzsimons General Hospital, September, 1944
(L). Arapahoe County: Ft. Logan, August 22, 1944 (Olson and
Keegan). Boulder County: Longmont, July 25, 1947 (H). El Paso
County: Camp Carson, June 29, 1944 (Olson and Keegan). Rio Blanco
County: Rangely, July 17, 1947 (H).

***Culex tarsalis* Coquillett**

This is one of the more important pest mosquitoes in Colorado.
It was not encountered in the mountainous regions above 7500 feet
elevation, but is widely distributed elsewhere. The females readily en-
ter dwellings and bite avidly. It has been taken by U. S. Public Health
Service personnel in the following counties: Alamosa, Arapahoe, Bent,
Chaffee, Cheyenne, Costilla, Delta, Denver, Dolores, El Paso, Fremont,
Garfield, Huerfano, Las Animas, Lincoln, Moffat, Montezuma, Mont-
rose, Otero, Prowers, Rio Grande, Routt, Saguache and Weld. Other
records are as follows: Boulder County: Boulder, August 23, 1940
(K). Jefferson County: Golden, September 6, 1917 (C). Larimer
County: Ft. Collins, 1941 (James).

***Culiseta impatiens* (Walker)**

Chaffee County: Buena Vista, August 10, 1944 (P); Monarch

Pass, May 25, 1947 (H). Clear Creek County: Georgetown, July 19, 1947 (H). Fremont County: Canon City, May 24, 1947 (H). Grand County: Grand Lake, May-June, 1923 (D), (3). Summit County: Loveland Pass, July 19, 1947 (H). Dyar (3), reports the species from Whittier Range, Cochetopa National Forest.

***Culiseta incidens* (Thompson)**

Adams County: Fitzsimons General Hospital, July-September, (L). Boulder County: Longmont, July 25, 1947 (H). Chaffee County: Buena Vista, September 5, 1944 (P). Costilla County: Ft. Garland, August 9, 1944 (P). El Paso County: Colorado Springs, 1942 (Portman). Garfield County: Rifle, July 18, 1847 (H). Gunnison County: Gunnison, May 25, 1947 (H). Larimer County: Virginia Dale, July 25, 1947 (H). Lincoln County: Limon, September 6, 1944 (P). Mesa County: Plateau Canyon, August 23, 1906 (Dyar), (3). Montrose County: Cimarron, September 4, 1944 (P).

***Culiseta inornata* (Williston)**

This species is widely distributed in the state at elevations below 8000 feet. Over most of its range it is associated with *Culex tarsalis*.

Adams County: Bennett, September 6, 1944 (P); Fitzsimons General Hospital, May-October, 1944-45 (L). Alamosa County: Alamosa, August 9, 1944 (P). Arapahoe County: Ft. Logan, July 10, 1944 (P). Chaffee County: Salida, September 4, 1944 (P). Costilla County: Ft. Garland, August 9, 1944 (P). Denver County: Denver, July 8, 1944 (P). Dolores County: Dove Creek, July 7, 1946 (H). Fremont County: Canon City, May 23, 1947 (H). Garfield County: Glenwood Springs and Rifle, July 19, 1947 (H); Silt, August 11, 1944 (P). Las Animas County: Trinidad, August 9, 1944 (P). Moffat County: Craig, June 13, 1947 (H). Morgan County: Ft. Morgan, September 8, 1944 (P). Rio Blanco County: Meeker, July 17, 1947 (H). Rio Grande County: Monte Vista, August 9, 1944 (P). Weld County: Greeley, August 8, 1944 (P).

***Culiseta melanura* (Coquillett)**

Adams County: Fitzsimons General Hospital, June-August, 1944 (L); July 14-31, 1944 (Olson and Keegan).

***Culiseta morsitans* (Theobald)**

Adams County: Fitzsimons General Hospital, 1945 (L); May-

August, 1944 (Olson and Keegan). Las Animas County: Trinidad,
July 11, 1944 (Olson and Keegan.)

Mansonia perturbans (Walker)

Boulder County: Longmont, July 25, 1947 (H). Garfield County:
Rifle, July 18, 1947 (H).

Psorophora confinnis (Lynch Arribalzaga)

Arapaho County: Lowry Field, July 17, 1944 (Olson and
Keegan).

Psorophora signipennis (Coquillett)

Adams County: Fitzsimons General Hospital, June-August, 1945
(L). Larimer County: Ft. Collins, 1941 (James); Loveland, July
25, 1947 (H). Rio Blanco County: Meeker, July 17, 1947 (H).

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